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Ether-FSH2402GT

Mixed Gigabit Ethernet Switch

Windows In-Band Management
24 × 10/100Base-TX ports
2 x 1000Base-T Gigabit Ports
Auto MDI/MDI-X
VLAN, Priority, Bandwidth Control
Trunking, Loop Detection

User's Manual

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FCC Warning

This equipment has been tested and found to comply with the requirements for a Class A digital device, pursuant to Part 15 of the FCC Rules. These requirements are designed for reasonable protection against harmful interference when the equipment operating in a commercial environment. This equipment can generate and radiate electromagnetic energy and, if not installed and used in accordance with this guide, may cause significant interference with radio communication. Operation of this equipment in a residential area is likely to cause interference to household appliances, in which case the user will be required to amend at his or her own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate preventive measures.

Disclaimer

Contents in this manual are subject to changes without prior notice.

About this *User's Manual*

This ***User's Manual*** aims at helping users to know the key features of **Ether-FSH2402GT Fast Ethernet Switch** and to install it in a **10/100BASE-TX Fast Ethernet and 1000Base-T Gigabit Ethernet Local Area Network (LAN)**.

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1 Product Overview

Introduction

Windows Remote Management software

Conventionally, configuring a switch's smart management will require users to attach the computer (serial or printer port) directly to the switch's console port. With Ether-FSH2402GT's in-band management capability, users can configure the switch through the Ethernet network. The included Windows management software provides a very simple point-and-click interface to set all the functions. Users can even backup settings to be restored in the future. Best of all, the management utility can configure several switches using the same utility.

Management Features

The Ether-FSH2402GT is equipped with many practical management functions.

Per-port bandwidth control

- allow limiting the outgoing and incoming bandwidth separately for each port .

Central Switch management:

- Configure several switches at the same time.

802.1Q tag VLAN

- enables VLAN assignment across different switches.

VLAN filter

- provide controls to let single-cast, multi-cast, or broadcast traffic to pass between VLANs.

Quality of Service

- for multimedia applications: the 802.1p compliance provide priority traffic management based on port, vlan-tag, or TCP/IP TOS information.

Link aggregation

- The LACP(Link Aggregation Control Protocol) increase the uplink speed by allowing several ports(Trunk Group) to link between the switches. The switch allows up to 7 trunk groups in 2 or 4 ports. Please make sure that switches on both side are setup for the trunking function.

IGMP Snooping

- for IP multicast group management

Broadcast Storm control

- prevents the broadcast traffic from overflowing the network.

Loop detection

- alert the user when there is a loop formed inside the network on the front panel LED.
- The management software's diagnostic function even report which ports the loop occurs.

Port setting

- setting port speed and duplex mode, flow control

Authentication Keys

- The switch support authentication key feature for the management function. This will prevent unauthorized users from changing the switch's settings.

For Detail information on management functions, please refer to Chapter 5 "Management Software Guide".

In-Band and Out-of-Band Management

In-Band and Out-of-Band managements are the two distinct methods for switch management.

In-Band management that includes WinSmart, Web, Telnet, and SNMP allows users to configure the switch through the Ethernet network.

Out-of-Band management means managing the switch outside of the switch's Ethernet network. Console Port management is the most common type of out-of-band management. Out-of-Band management requires the switch to be physically attached to a computer through a RS-232, USB, or Parallel port.

The Ether-FSH2402GT is equipped with WinSmart In-band management. It uses the unique RRCP protocol that enables the included Windows utility to manage the switch inside the LAN. However; since it does not use IP protocol, it cannot be managed remotely from the Internet.

What is VLAN?

Defining VLAN

What is VLAN? Since VLAN solutions and implementations are still very vendor-specific, to define precisely what VLANs will certainly arouse controversy. Nevertheless, most would agree that a VLAN can roughly be equated as a broadcast domain. More specifically, VLANs can be seen as a group of end stations, perhaps on multiple physical LAN segments, which are not constrained by their physical location and can communicate as if they were on a common LAN.

There are several ways to define VLAN membership: port grouping, frame tagging, MAC-layer grouping, network-layer grouping, IP multicast grouping, etc. **Ether-FSH2402GT** utilizes port-grouping (port-based VLAN) for the implementation of VLAN in your network.

Port-based VLAN

Ether-FSH2402GT Fast Ethernet Switch fulfills the initial VLAN implementation as defining

VLAN membership by groups of switch ports. Port grouping is the most common method of defining VLAN membership, and its configuration is straightforward. But, when a user moves from one port to another, it takes a network manager to manually reconfigure VLAN membership.

With manual VLAN configuration, both the initial setup and all subsequent moves and changes are controlled by the network administrator, enabling a high degree of control. Also moving users manually with VLANs may actually be easier than moving users across router subnets.

Table Maintenance via Signaling

When an end-station broadcasts its first frame, the switch resolves the end-station's attached port with its VLAN membership in cached address tables. As VLAN membership changes, these address tables can be manually updated by a system administrator at a management console.

802.1q VLAN Standard

In March, 1996, the IEEE 802.1 Internet-working Subcommittee completed the initial phase of investigation for developing a VLAN standard. The standard, known as 802.1Q, represents a major milestone in enabling VLANs to be implemented. Since the rapid deployment of LAN switching from around 1995, the shift toward LAN switching as a replacement for local/departmental routers, or even shared media devices (hubs) is just accelerating for now.

What is Priority Queuing?

Priority Queuing is a method of ensuring that high priority traffic gets delivered efficiently, even when during bursts of high traffic load. In this way, traffic such as voice data and video (services which are streaming) are prioritized, helping steady picture and sound quality.

Ether-FSH2402GT allows 2-level (*High/Normal*) Priority setting by any of the three types of *priority frames operations*: **TCP/IP TOS, VLAN tag** or **per Port *priority frame operation***.

The QoS setting for priority *per port* means that all packets received by the port will be priority frames; **Ether-FSH2402GT** can also judge the priority of frames by checking the specific bits of *VLAN tag* or *TCP/IP TOS/DS* included in the frame format. **Ether-FSH2402GT** will judge the priority of frames by checking the specific bits recorded in the type field of packet format to ensure the VLAN or TCP/IP TOS/DS status of packets, then set the threshold of VLAN or TCP/IP TOS/DS to declare the priority of packet.

If you have any plans to implement network telephony or any sort of video conferencing, streaming video/audio or any real-time applications on your network you will need **Ether-FSH2402GT** for priority queuing. Its benefit is to dramatically improve the quality of priority services on the network. If priority queuing is not implemented then the quality of these services will depend entirely on the loads on your network. If network traffic is high, the service will not work properly.

Product Features

- **Standard Compliance**
  - IEEE 802.3 10Base-T Ethernet
  - IEEE802.3u 100BaseTX standard
  - IEEE802.3ab 1000Base-T standard
  - IEEE 802.3u Nway auto-negotiation
  - IEEE802.3x flow control for full duplex, back-pressure for half-duplex
  - IEEE 802.1p/Q tage VLAN and QoS
  - IEEE 802.3ad link aggregation
- **Hardware Feature**
  - 24 x 10/100Base-TX Nway ports
  - 2 x 1000Base-T Copper Gigabit port
  - MPU included
  - Auto MDI/MDI-X function
  - Store-and-Forward architecture
  - Non-blocking wirespeed switching architecture
  - 8K MAC address
  - 2.5Mbit Embedded memory Buffer.
  - 8.8 Gbps Throughput
  - Shared frame buffer with starvation control
  - LEDs
    - Power, Loopdetect, DIAG
    - Link/ACT, FDX/COL, 100M
- **Smart Remote Managements:**
  - Windows Remote Management Software
  - Configure several switches on one program
  - Management through Ethernet network
  - Authentication Key function
  - Bandwidth Control
    - Separate Tx and Rx speed limit control for each port
    - 128Kbps, 256Kbps, 512Kbps, 1Mbps, 2Mbps, 4Mbps, 8Mbps option
  - VLAN
    - Up to 32 VLAN groups, up to 24 ports per VLAN group
    - Port based or 802.1Q tag VLAN
    - Ingress rule for ingress filtering control
    - Unicast Inter-VLAN control
    - ARP Broadcast Inter-VLAN control
    - IP Multicast Inter-VLAN control
  - 802.1p Prority: 2-level , Port Based, IP Based(TOS), VLAN TAG(TCI)
  - 802.3ad Link Aggregation: 7

- **Dimensions**: 432 × 180 × 44 mm, 19" rack mountable
- **Weight:** 2.7 kg
- **Built-in power supply**: 100~240 VAC, 50 ~ 60 Hz, 0.4A, 10 Watts max.
- **Safety/EMI**: meet UL, FCC, CE, Korea EMI standard

Trunk groups in 2 or 4 ports

- IGMP Snooping for IP multicast group management
- Broadcast Storm Control to limit broadcast traffic
- Status on bandwidth utilization, byte count, packet count, MIB counter
- Loop detection LED on the front panel
- Diagnostic software detects Trunking and Loop fault
- Port speed, Duplex Mode, Flow Control

2 Preparation before Installation

Unpack the Package

Before you begin the installation of **Ether-FSH2402GT** Fast Ethernet Switch, make sure that you have all the necessary accessories that come with your package. Follow the steps below to unpack your package contents:

1. Clear out an adequate space to unpack the package carton.
2. Open the package carton and take out the contents carefully.
3. Put back all the shipping materials such as plastic bag, paddings and linings into the package carton and save them for future transport need.

After unpacking and taking out the entire package contents, you should check whether you have got the following items:

- ☒ **Ether-FSH2402GT** Fast Ethernet Switch
- ☒ One AC power cord
- ☒ Rack-mounting kit (screws and mounting brackets)
- ☒ Support CD-ROM (The PDF version of this *User's Manual* can be found within)

If any of these above items is missing or damaged, please contact your local dealer for replacement.

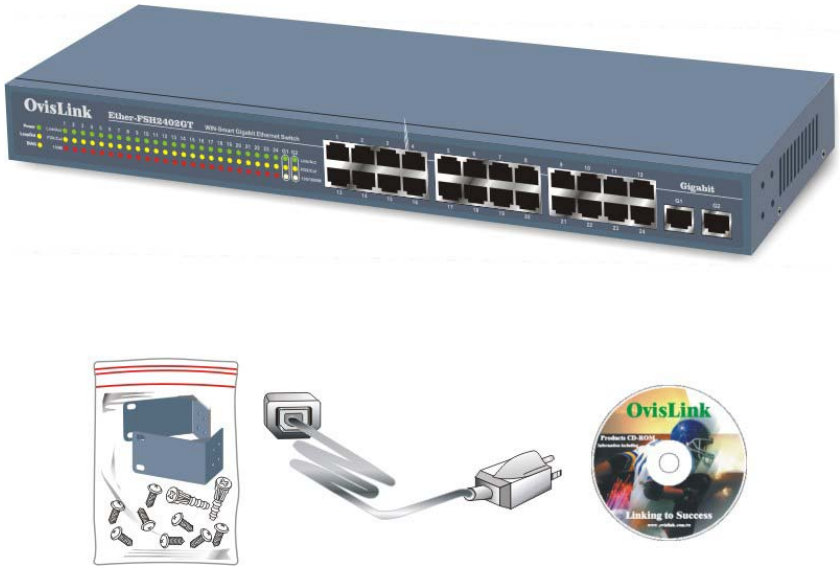


Fig. 2-1 Package Contents

The Front Panel

The front panel is where you can find the twenty-four 10/100Mbps station ports , 2 Gigabit Ports, and the LED indicators. For the technical specifications of the ports, please refer to *Appendix A, Product Specifications* for detailed information. For information concerning LED indicators, please refer to *Chapter 4, LED Indicators*.

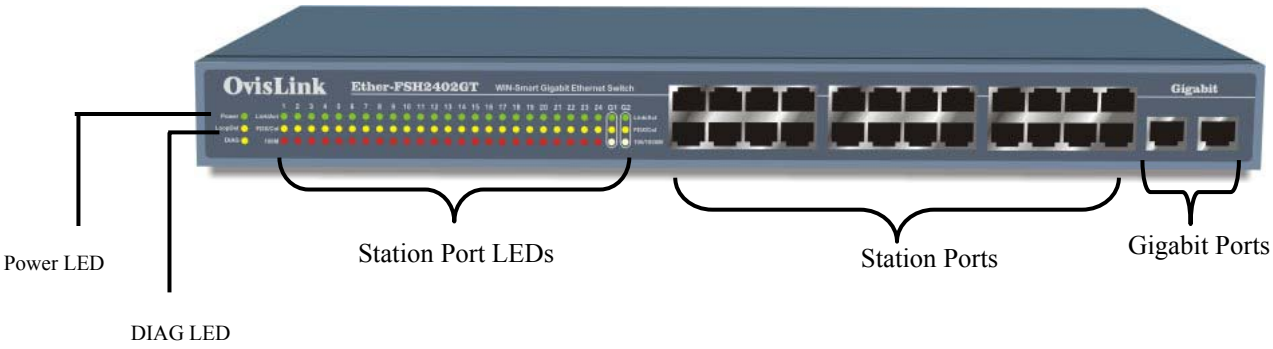


Fig. 2-2 Front Panel

Reset Button

The Ether-FSH2402GT Features a reset button that can restore the switch settings back to factory's default value. Please press this button if your management software have problem detecting the switch or if the switch is not functioning correctly. The reset button is located near the center of the back panel.

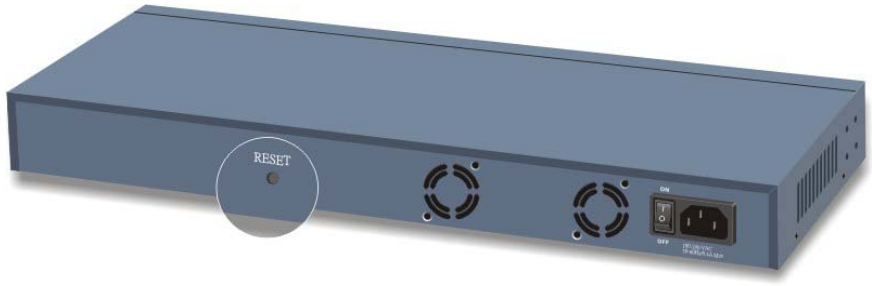


Fig 2-3 The Reset Button

The Rear Panel

The rear panel is where you can locate the power switch and AC power connector.

Power Switch

You can turn the power switch on /off to activate/deactivate the Switch. To turn on the Switch, press the switch to the ON position. To turn off, press the switch to the OFF position.

AC Power Connector

This is a three-pronged power connector where the power cord should be attached. Just plug the female end of the power cord into the connector, and the male end of the power cord into an AC power outlet. The switch supports an input voltages ranging from 100 ~ 240 V_{AC} @ 50~60 Hz .

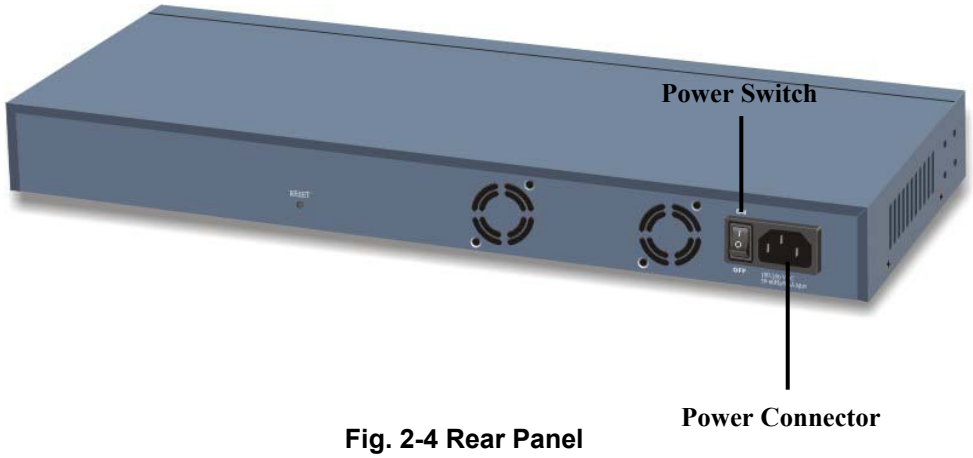


Fig. 2-4 Rear Panel

3 Installation of the Switch

Quick Installation

Ether-FSH2402GT Fast Ethernet Switch is fully compliant with 10/100BASE-TX Fast Ethernet standards.

5 Steps to Quick Installation

Step 1. **Power on the Switch.**

Step 2. **Connect network devices to the Switch:** connect either workstation, server, switch, bridge or router to the station port (10/100BASE-TX), using 100 ohm unshielded twisted pair (category 5 UTP) or shielded twisted-pair (STP) cable.

Step 3. **Install the Management software:** Please refer to chapter 5 for detail instruction on how to install and configure the management software.

Rack Mounting

Ether-FSH2402GT Fast Ethernet Switch can also be mounted on a standard size 19-inch rack, which can in turn be placed in a wiring closet with other equipments.
Before you can mount the switch on the rack, first you must attach the mounting brackets on both sides of the switch with screws, and then mount it as a unit on the rack.

To mount the unit on a rack, please follow the steps below:

Step 1. First, align the holes on the bracket with the holes on both side of the switch.
Step 2. Insert screws into the holes and then fasten the bracket on one side of the switch with a screwdriver.
Step 3. Repeat Step 1 and 2 to fasten the bracket on the other side of the switch.
Step 4. Mount the unit on the rack and align the notches on both brackets with mounting holes on the rack, and then secure the unit with suitable screws.

Fig. 3-1 Fastening the brackets on the switch

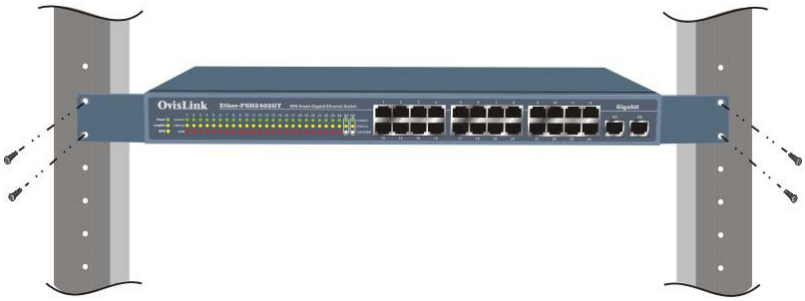


Fig. 3-2 Attaching the Switch to a 19-inch rack

Desktop Installation

Ether-FSH2402GT Fast Ethernet Switch has four rubber pads attached on each corner of its underside. These pads serve as cushionings against vibration and prevent the switch from sliding off its position. They also allow adequate ventilation space when you place the switch on top of another device.

Fig. 3-3 Desktop installation

- The location you choose to install your switch and the way you configure your network may greatly affect its performance.

Installation Site Preparation

You can mount **Ether-FSH2402GT** Fast Ethernet Switch either on desktop or on a 19-inch rack. If you plan to mount the switch on desktop, please choose a steady, level surface in a well-ventilated area that is free from excessive dust. In any case, the installation site chosen for your switch has to comply with the following requirements:

- The surface where you want to mount the switch must be able to sustain at least 2.7 kg.
- Do not place heavy objects on top of the switch.
- The location must preferably be free from excessive dust, away from heat vent, hot-air exhaust and direct sunlight.

- The switch should not be placed near large electric motors or other strong electromagnetic sources. As a reference, the strength of the electromagnetic field on site should not exceed the (RFC) standards for IEC 801-3, Level 2(3V/M) field strength.
- The air temperature in the location should be within a range of 32 to 122 °F (0 to 55°C).
- The relative humidity in the location should not exceed 95% non-condensing humidity.
- The distance between the RJ-45 port and the standard network interface should not exceed 100 meters.
- Adequate space should be allowed in front of all the ports, so that each port is easily accessible for cable connections.

Cabling Guide

For 100BASE-TX and 1000Base-T ports

The 24 10/100Mbps and 2 Gigabit station ports require Cat. 5 twisted-pair UTP/STP cable for connection. When configuring within the 10/100BASE-TX cabling architecture, the cable distance should be within 100m.

The following table summarizes the cable requirement for 10/100/1000BASE-T connection:

10BASE-T	100 ohm Category 3, 4, 5 UTP/STP cable
100BASE-TX	100 ohm Category 5 UTP/STP cable
1000Base-T	100 ohm Category 5 UTP/STP cable

Auto MDI/MDI-X function

The SNMP-FSH2402GT is equipped with Auto-MDI/MDI-X function, which allows you to use straight-thru cable even when connecting to another switch/hub. Simply use the straight-through cable for all types of 10/100/1000BASE-T connections, either to a PC or to a networking device such as other hub or switch.

Connection / Specification	10 /100Base-TX Ports	1000Base-T Ports
Interface	RJ-45	RJ-45
Cable to Use		
To an end station	Straight-through twisted-pair cable	Straight-through twisted-pair cable
To a hub/switch	Straight-through twisted-pair cable	Straight-through twisted-pair cable
Maximum Distance	100 meters	100 meters

Table 2-2 Cabling type for 10/100BASE-TX and 1000Base-T

Making your own UTP/STP cable

The twisted-pair cable provided an eight-pin plug at each end that mate with the twisted-pair port on the adapter and with a RJ-45 wall jack. If you are marking your own interface cables to use as dedicated network wiring or as extension cables, please follow the guideline below:

- Each UTP/STP cable contains eight wires in either 568A or 568B color scheme (please see Fig 2-7). The wires are twisted in pairs to reduce cross talk and various signal noises.
- Each pairs composed of one positive wire and one negative wire. The positive are marked by stripe color while the negative are marked by solid color. A pair of wires is composed of one stripe and one solid wire of the same color.
- There are four pairs of wires, they are in group of {1 and 2}, {3 and 6},{4 and 5},{7 and 8}. Please see Fig 2-8 for diagram.
- When making a cable, make sure the correct pairs of wire are twisted together before inserting into the jack. Incorrect twisted pair will cause the cable to malfunction or signal degradation over short distance.
- A straight-thru cable have jacks on both end following the same color scheme.
- A cross-over cable have jacks on both end following the opposite color scheme (one 568A and one 568B)
- While 10/100Base-TX only use the first 2 pairs of wires (1+2, 3+6). However, please still make sure all 4 pairs are twisted and insert into the jack in correct order.
- The 1000Base-T Gigabit port use all 4-pairs of wires.

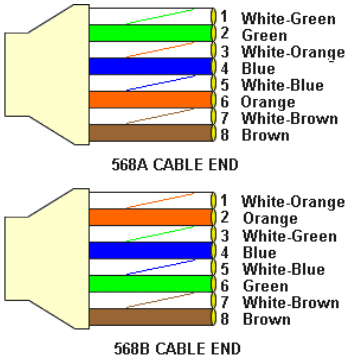


Fig 2-3 Twisted Pair Color Scheme

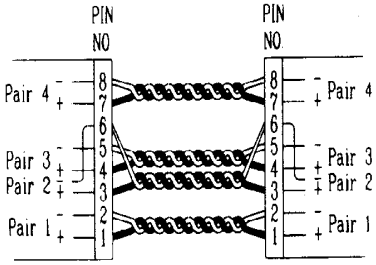


Fig 2-4 Pair Wires

Connecting to Power

Ether-FSH2402GT Fast Ethernet Switch features a universal auto-select power supply unit, which allows a power connection to a wide range of input voltages from 90 to 240V_{AC} @ 50 ~ 60Hz. To establish its power connection, simply plug the female end of the power cord into the power connector on the rear of the switch and the male end of the power cord into a suitable power outlet. Once you have correctly plugged in the power, you can then turn on the Power Switch to activate the switch.

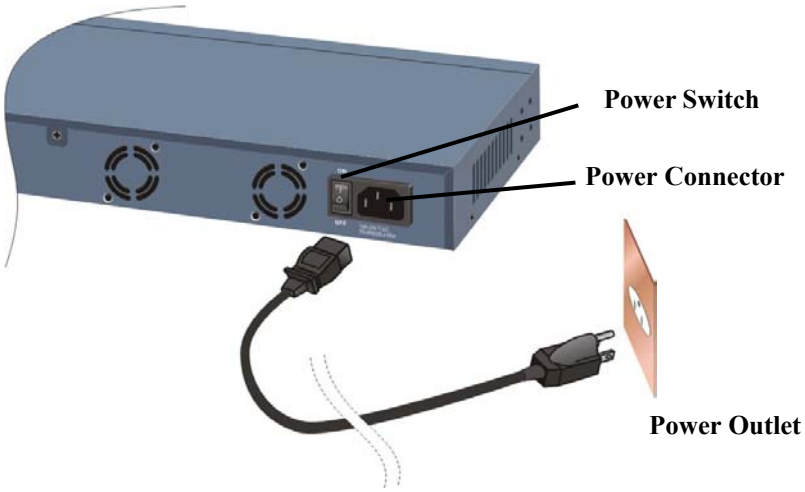
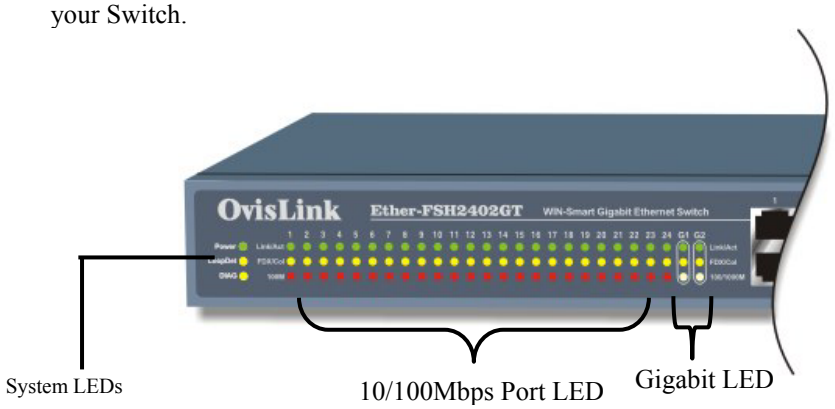


Fig 3-13 Connecting the Switch to power outlet

4 LED Indicators

Before connecting any network device to **Ether-FSH2402GT** Fast Ethernet Switch, you should take a few minutes to look over this chapter and get familiar with the front panel LED indicators of your Switch.



System LEDs

- **Power** (green) to indicate power on/off status
- **LoopDet** (yellow) to indicate network loop has formed inside the network. You can use the management program's diagnostic function to find out which port the loop occurs.
- **DIAG** (yellow) to indicate the power on self test (POST) fails status, which indicate a fault chip.

10/100Mbps Port LEDs

For port 1 ~ port 24

- **Link/Act** (green) to indicate linking status and activity
- **FDX/Col** (yellow) to indicate Full Duplex transmission mode and collision status
- **100 M LED** (red) to indicate 100 Mbps speed

Gigabit Port LED

For port G1 and G2

- **Link/Act** (green) to indicate linking status and activity
- **FDX/Col** (yellow) to indicate Full Duplex transmission mode and collision status
- 100/1000M **LED:** (Green) to indicate 1000 Mbps speed
  (Orange) to indicate 100 Mbps speed

LED Table

LED indicator	Color	Status	Meaning
System LEDs			
Power LED	● Green	ON OFF	Power ON Power OFF
LoopDet LED	● Yellow	ON OFF	Detect a loop even in the network Loop not detected
DIAG LED	● Yellow	ON OFF	POST has failed POST is O.K.
10/100Mbps port LED (Port 1 to 24)			
Link/Act	● Green	ON Blinking OFF	Connection is made Transmitting/Receiving No connection is made
FDX/Col	● Yellow	ON Blinking OFF	Full Duplex Collision (*in half duplex*) Half Duplex
100M	● Red	ON OFF	100Mbps speed 10Mbps speed
Gigabit port LED (Port G1 and G2)			
Link/Act	● Green	ON Blinking OFF	Connection is made Transmitting/Receiving No connection is made
FDX/Col	● Yellow	ON Blinking OFF	Full Duplex Collision (*in half duplex*) Half Duplex
1000M	● Green ● Orange	ON ON OFF	1000Mbps speed 100Mbps speed 10Mbps speed

Table 4-1 System & Station Port LEDs

5 Management Software Guide

Introduction

The OvisLink Windows remote management software allows user to configure the management function though the LAN port. It uses a specialized RRCP protocol and does not use the IP protocol. It operates inside the Ethernet network.

Important Information

- WinPCap application (included in the CD) must be installed before installing the management software
- Please make sure to press the "Update" button after changes
- Please make sure to "write to the switch" after change settings
- The Ether-FSH2402GT has a factory reset button on the back panel. This button will restore switch's setting to factory's default values.
- If your management program can't find the switch, please press the reset button.
- If the application says authentication failure and the authentication key is correct, please press "edit Switch Database" and clear all entries.
-

Minimum system requirements

To use Remote Management Application, it is necessary that your system include the following components:

Hardware

- Pentium class processor
- 32 MB RAM

Software

- Windows® 98 (Second Edition for non-English operating systems), WinME, WinNT 4.0 with Service Pack 6, Win2000, or WinXP
- WinPCap 3.0 (included in the CD)

Installing the Software

Please follow the procedures below to install the management program into your Windows

1. Insert the OvisLink CD into your computer, the Product CD menu should show up automatically. If not, on the File Explorer, please click on "setup.exe" to begin.

2. Click on "ETHER/SNMP Series" and select the "Ether-FSH2402GT"

3. Follow the instruction on screen to install the "WinPCap" and "The Remote Management Utility"

4. After you install Management Application on your computer, an application icon

is placed on the desktop.

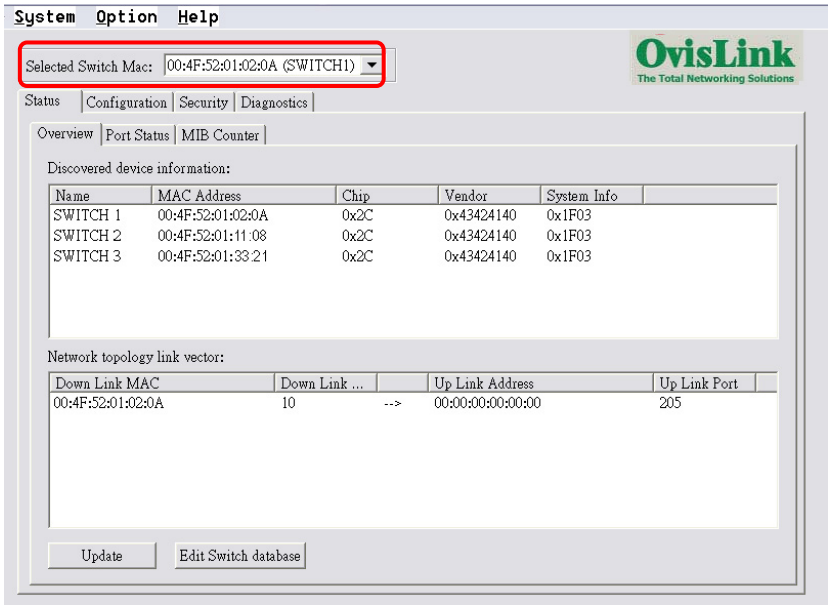
Starting the Software

1. To start Management Application, go to the desktop and double click on the

icon. (Or select "Start->Program ->RMT->RMT" from the Start menu)

2. You can select one network adapter. The adapters are displayed in the combo box.

3. The program will search for all WinSmart switches on the network and display them. The utility can configure only one switch at a time, if you have more than one WinSmart switch, please choose one to configure by pull down the "Selected Switch Mac" field.

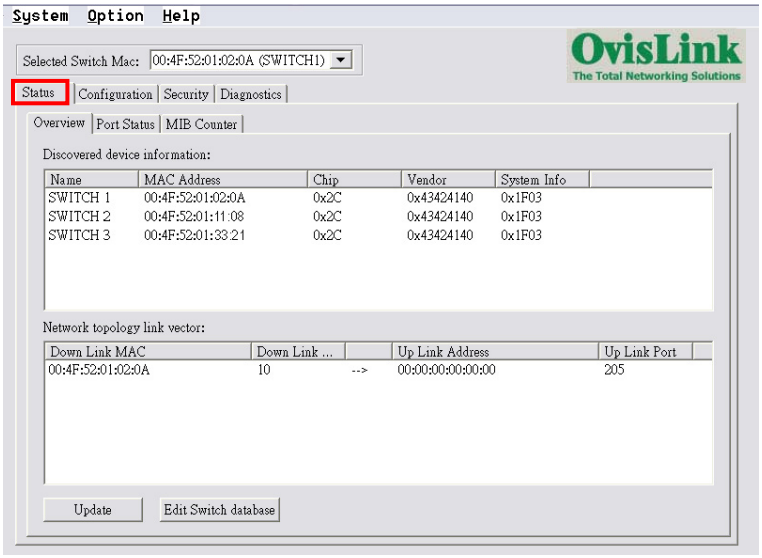

System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH1)
OvisLink
The Total Networking Solutions
Status Configuration Security Diagnostics
Overview Port Status MIB Counter
Discovered device information:
Name MAC Address Chip Vendor System Info
SWITCH 1 00:4F:52:01:02:0A 0x2C 0x43424140 0x1F03
SWITCH 2 00:4F:52:01:11:08 0x2C 0x43424140 0x1F03
SWITCH 3 00:4F:52:01:33:21 0x2C 0x43424140 0x1F03
Network topology link vector:
Down Link MAC Down Link ... Up Link Address Up Link Port
00:4F:52:01:02:0A 10 --> 00:00:00:00:00:00 205
Update
Edit Switch database

Note: *If your switch doesn't show up in the menu. Please reset the switch and press "update button".*

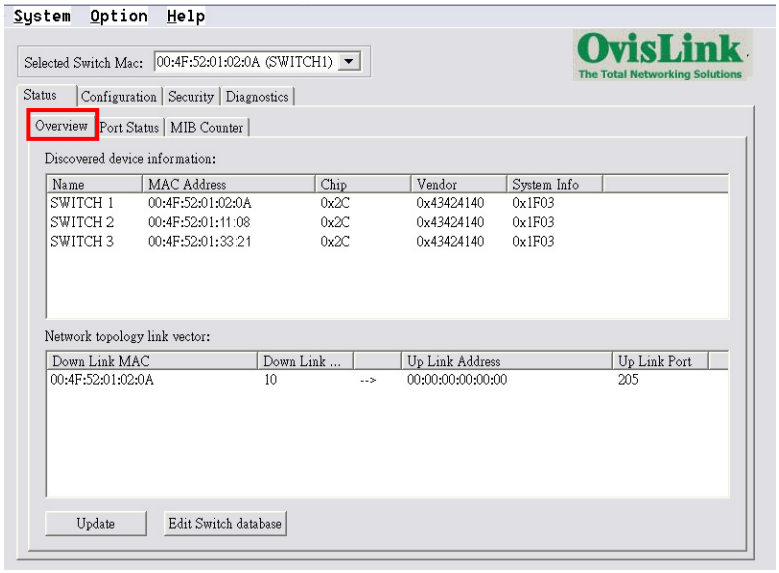
There are 4 major functions on the management screen "**Status**", "**Configuration**", "**Security**", and "**Diagnostic**". We will discuss them in the following sections. ***Please make sure to save to the hardware after changes.***

Status Functions

Click on the Status Tab of the management screen will bring you the overview, port status, and MIB counter sub menus.


System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH1)
OvisLink
The Total Networking Solutions
Status Configuration Security Diagnostics
Overview Port Status MIB Counter
Discovered device information:
Name MAC Address Chip Vendor System Info
SWITCH 1 00:4F:52:01:02:0A 0x2C 0x43424140 0x1F03
SWITCH 2 00:4F:52:01:11:08 0x2C 0x43424140 0x1F03
SWITCH 3 00:4F:52:01:33:21 0x2C 0x43424140 0x1F03
Network topology link vector:
Down Link MAC Down Link ... Up Link Address Up Link Port
00:4F:52:01:02:0A 10 --> 00:00:00:00:00:00 205
Update
Edit Switch database

Overview Submenu

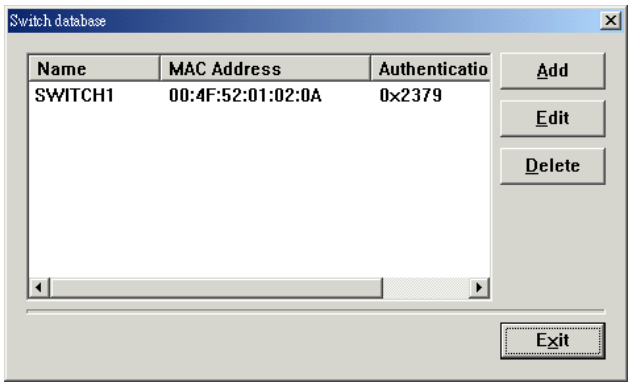

System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH1)
OvisLink
The Total Networking Solutions
Status Configuration Security Diagnostics
Overview Port Status MIB Counter
Discovered device information:
Name MAC Address Chip Vendor System Info
SWITCH 1 00:4F:52:01:02:0A 0x2C 0x43424140 0x1F03
SWITCH 2 00:4F:52:01:11:08 0x2C 0x43424140 0x1F03
SWITCH 3 00:4F:52:01:33:21 0x2C 0x43424140 0x1F03
Network topology link vector:
Down Link MAC Down Link ... Up Link Address Up Link Port
00:4F:52:01:02:0A 10 --> 00:00:00:00:00:00 205
Update
Edit Switch database

Discovered device information:
List all switches founded in the network. You can named the switches by double-click the item in the list box.

Network topology link vector:
Show the link status of the switches.

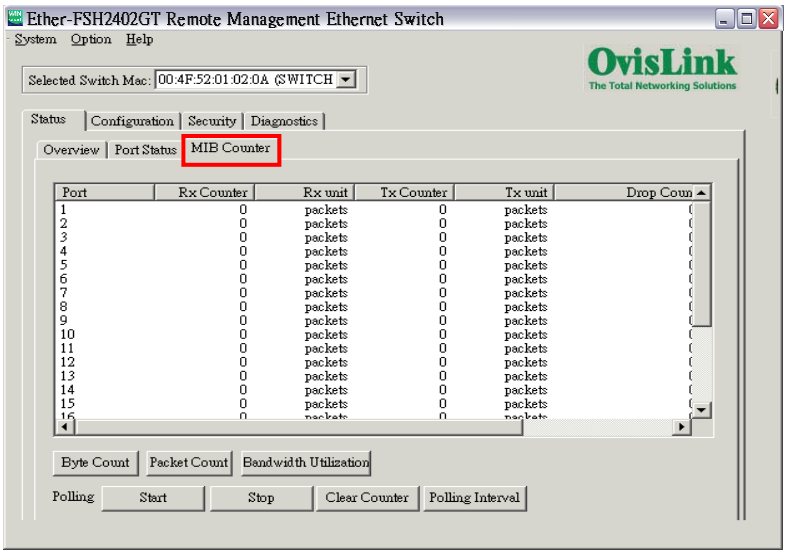
Update button
If you want to know the newest switch's information of the network, press the Update button.

Switch database button
You can view the switch database. The database dialog box displays switch's name, mac address and authentication Key.



MIB Counter Submenu

You can view the MIB counter about the RX, TX and Diagnostic Counter. Click the Diagnostic Counter column header, there are three object you can select, such as Drop count, CRC error count and Collision count.


Ether-FSH2402GT Remote Management Ethernet Switch
System Option Help
OvisLink
The Total Networking Solutions
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH
Status Configuration Security Diagnostics
Overview Port Status MIB Counter
Port Rx Counter Rx unit Tx Counter Tx unit Drop Coun
Byte Count Packet Count Bandwidth Utilization
Polling Start Stop Clear Counter Polling Interval

Byte Count Button
You can set the unit of the RX and TC counter to Byte count.

Packet Count Button
You can set the unit of the RX and TC counter to Packet count.

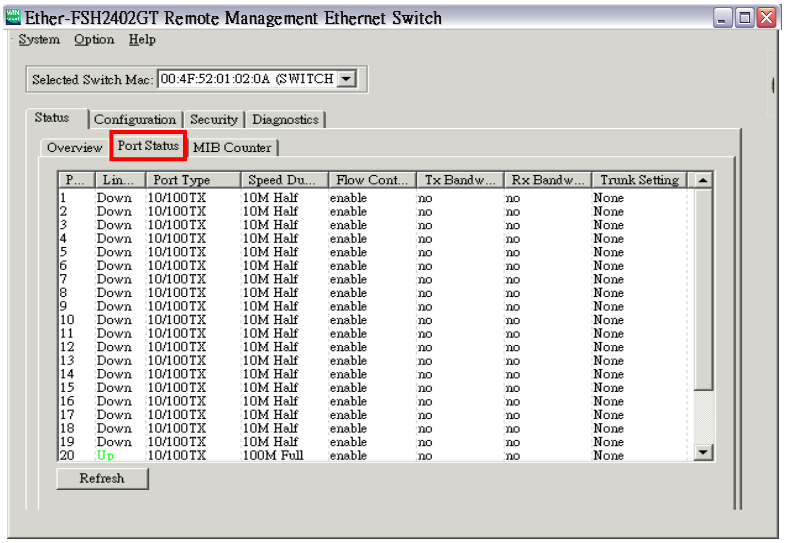
Bandwidth Utilization Button
Displayed the per-port traffic utilization. It will set the TX, RX and Diagnostic Counter to utilization mode.

About Polling

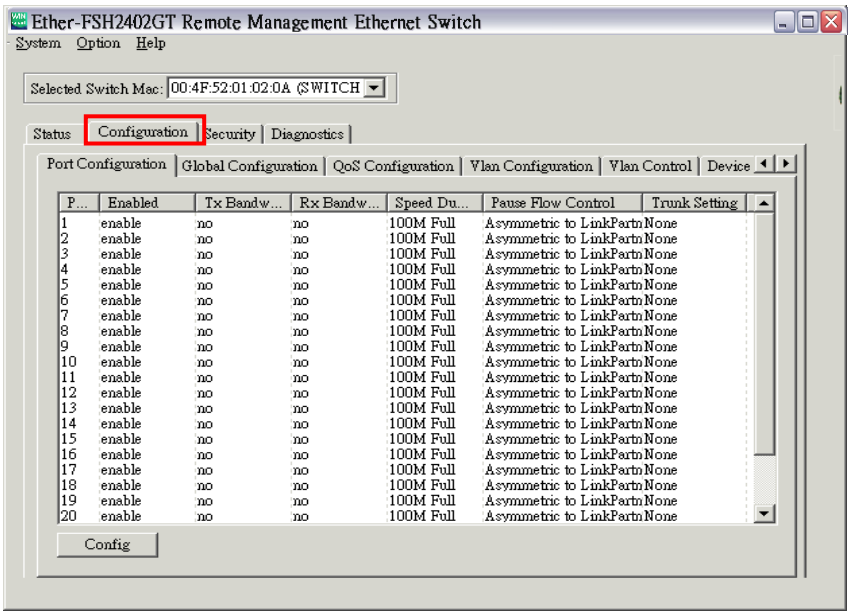
- You can start counter by click the Start button, and click the Stop Button to stop.
- Clear Counter button is use to clear all MIB counters, it will reset the counters to 0.
- Polling interval button is used to set the time interval for the frequency of queried.

Port Status Submenu

You can view the port status of the switch that you select. The list box will show the status of port1, port2…,and port26. The port status includes port type, enabled status, link status, speed duplex, flow control, Tx bandwidth control, Rx bandwidth control, and trunk setting status.

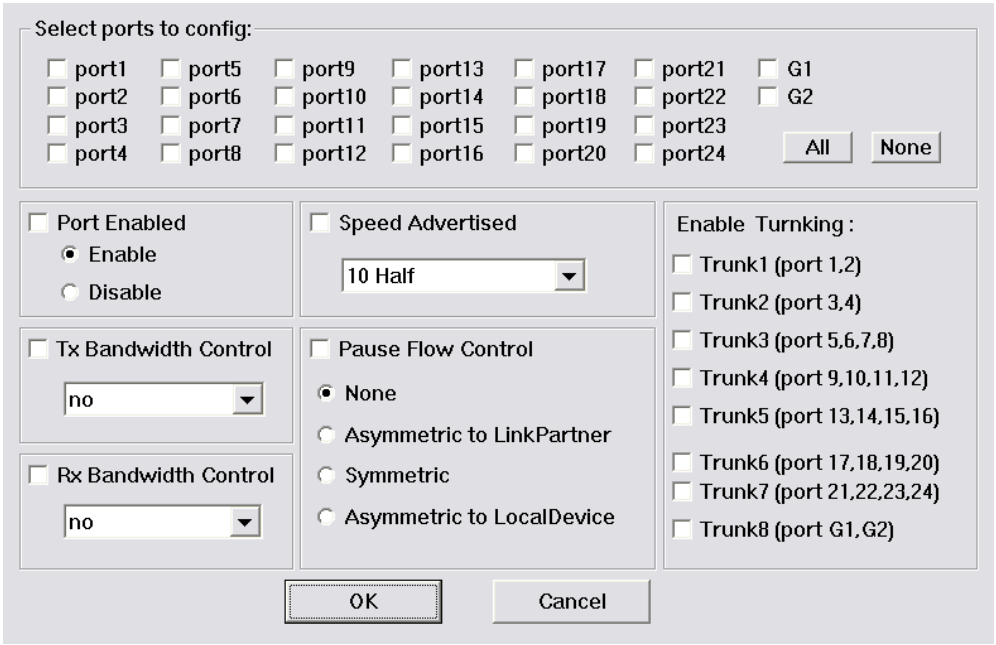

Ether-FSH2402GT Remote Management Ethernet Switch
System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH
Status Configuration Security Diagnostics
Overview Port Status MIB Counter
P... Lin... Port Type Speed Du... Flow Cont... Tx Bandw... Rx Bandw... Trunk Setting
1 Down 10/100TX 10M Half enable no no None
2 Down 10/100TX 10M Half enable no no None
3 Down 10/100TX 10M Half enable no no None
4 Down 10/100TX 10M Half enable no no None
5 Down 10/100TX 10M Half enable no no None
6 Down 10/100TX 10M Half enable no no None
7 Down 10/100TX 10M Half enable no no None
8 Down 10/100TX 10M Half enable no no None
9 Down 10/100TX 10M Half enable no no None
10 Down 10/100TX 10M Half enable no no None
11 Down 10/100TX 10M Half enable no no None
12 Down 10/100TX 10M Half enable no no None
13 Down 10/100TX 10M Half enable no no None
14 Down 10/100TX 10M Half enable no no None
15 Down 10/100TX 10M Half enable no no None
16 Down 10/100TX 10M Half enable no no None
17 Down 10/100TX 10M Half enable no no None
18 Down 10/100TX 10M Half enable no no None
19 Down 10/100TX 10M Half enable no no None
20 Up 10/100TX 100M Full enable no no None
Refresh

Configuration Functions


Ether-FSH2402GT Remote Management Ethernet Switch
System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH
Status Configuration Security Diagnostics
Port Configuration Global Configuration QoS Configuration Vlan Configuration Vlan Control Device
P... Enabled Tx Bandw... Rx Bandw... Speed Du... Pause Flow Control Trunk Setting
1 enable no no 100M Full Asymmetric to LinkPartn None
2 enable no no 100M Full Asymmetric to LinkPartn None
3 enable no no 100M Full Asymmetric to LinkPartn None
4 enable no no 100M Full Asymmetric to LinkPartn None
5 enable no no 100M Full Asymmetric to LinkPartn None
6 enable no no 100M Full Asymmetric to LinkPartn None
7 enable no no 100M Full Asymmetric to LinkPartn None
8 enable no no 100M Full Asymmetric to LinkPartn None
9 enable no no 100M Full Asymmetric to LinkPartn None
10 enable no no 100M Full Asymmetric to LinkPartn None
11 enable no no 100M Full Asymmetric to LinkPartn None
12 enable no no 100M Full Asymmetric to LinkPartn None
13 enable no no 100M Full Asymmetric to LinkPartn None
14 enable no no 100M Full Asymmetric to LinkPartn None
15 enable no no 100M Full Asymmetric to LinkPartn None
16 enable no no 100M Full Asymmetric to LinkPartn None
17 enable no no 100M Full Asymmetric to LinkPartn None
18 enable no no 100M Full Asymmetric to LinkPartn None
19 enable no no 100M Full Asymmetric to LinkPartn None
20 enable no no 100M Full Asymmetric to LinkPartn None
Config

Port Configuration Submenu

Press the “Config” button, and you will see a dialog like follows. Put the check in the item you want to configure.



Select ports to config:

Please select a port to set settings

Port Enable:
The default is to enable the port. Check the "Disable" if you want to disconnect the port

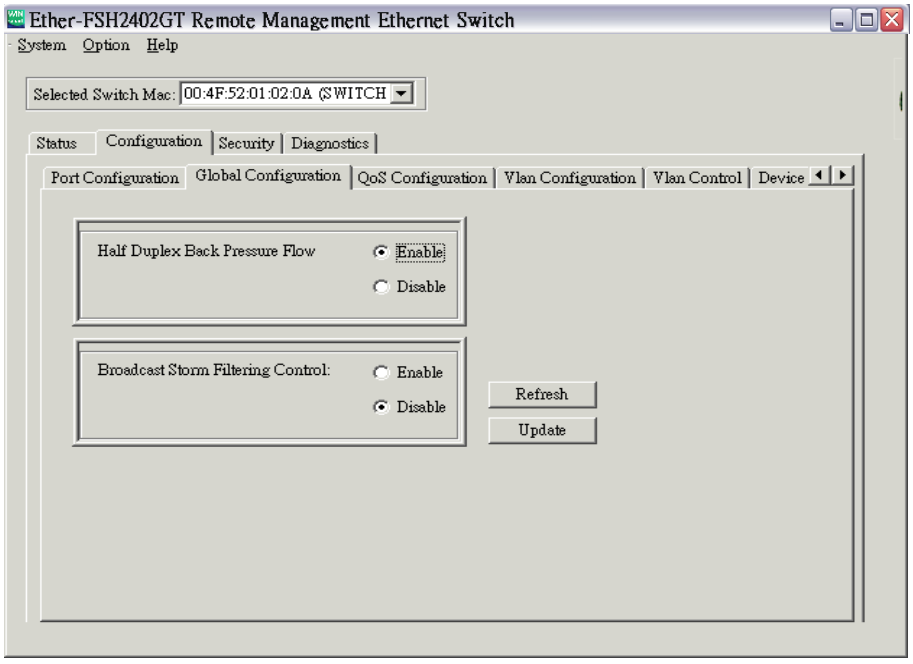
Tx Bandwidth Control
Enable this function will restrict the given port's sending speed to the selected value.

Rx Bandwidth Control
Enable this function will restrict the give port's receiving speed to the selected value

Speed Advertised
Changing the speed and duplex mode of a given port.

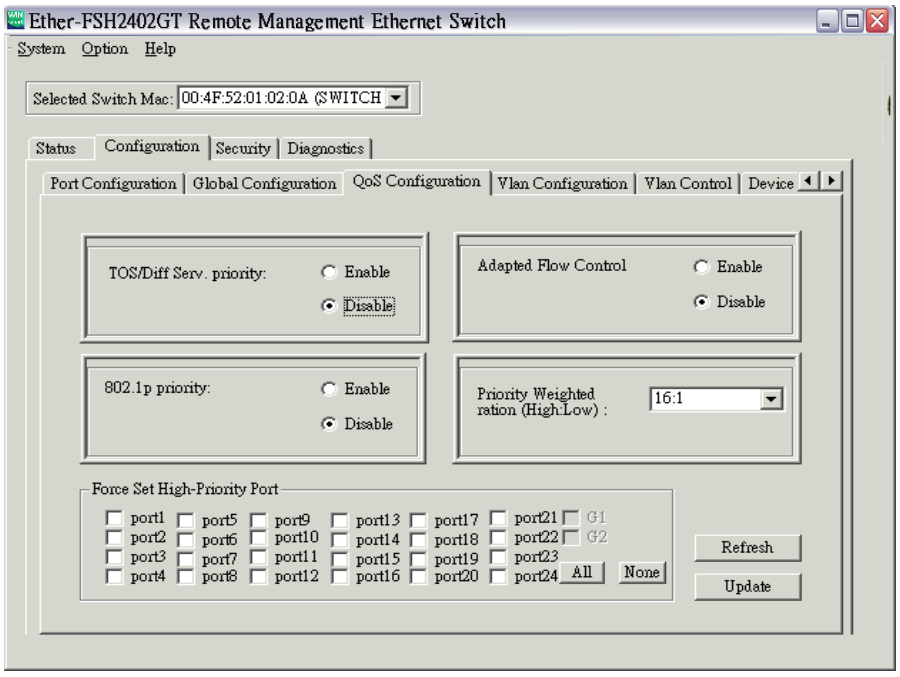
Global Configuration Submenu

Global Configuration is used to configure the global port control registers. Press the Refresh button to read the status of the registers. Press the Update button to set the registers as shown in this frame.



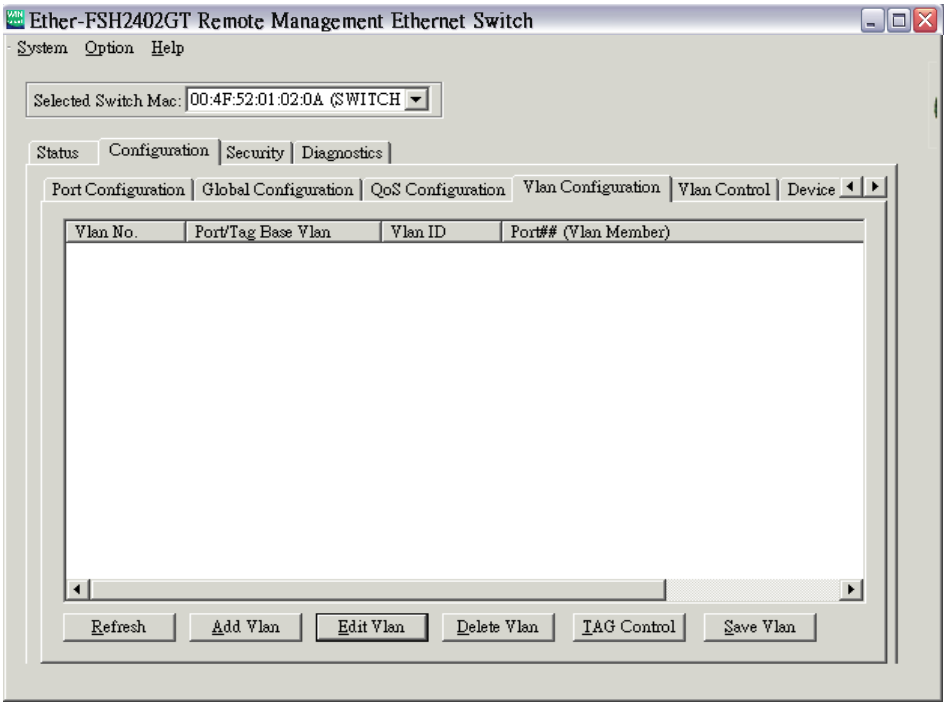
Qos Configuration Submenu

Qos Configuration is used to configure the Qos control registers. Press the Refresh button to read the status of the registers. Press the Update button to set the registers.


Ether-FSH2402GT Remote Management Ethernet Switch
System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH
Status Configuration Security Diagnostics
Port Configuration Global Configuration QoS Configuration Vlan Configuration Vlan Control Device
TOS/Diff Serv. priority: Enable Disable
Adapted Flow Control Enable Disable
802.1p priority: Enable Disable
Priority Weighted ration (High:Low) : 16:1
Force Set High-Priority Port
port1 port2 port3 port4 port5 port6 port7 port8 port9 port10 port11 port12 port13 port14 port15 port16 port17 port18 port19 port20 port21 port22 port23 port24 G1 G2 All None
Refresh
Update

VLAN Configuration Submenu

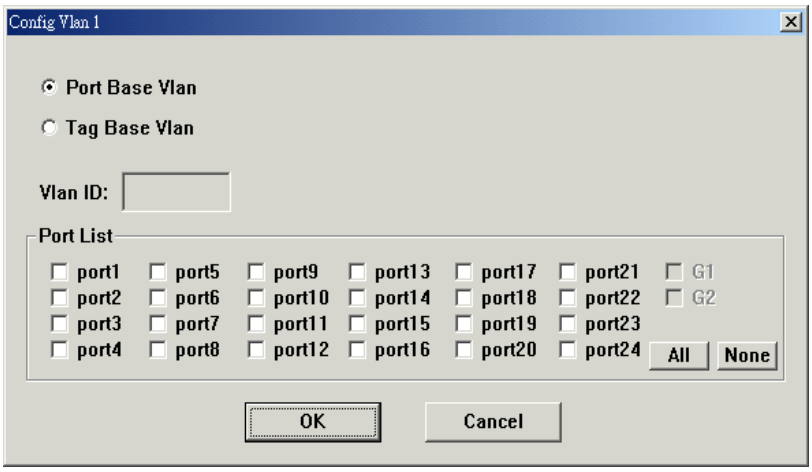
This page is used to configure the vlan table registers.


Ether-FSH2402GT Remote Management Ethernet Switch
System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH
Status Configuration Security Diagnostics
Port Configuration Global Configuration QoS Configuration Vlan Configuration Vlan Control Device
Vlan No. Port/Tag Base Vlan Vlan ID Port## (Vlan Member)
Refresh Add Vlan Edit Vlan Delete Vlan TAG Control Save Vlan

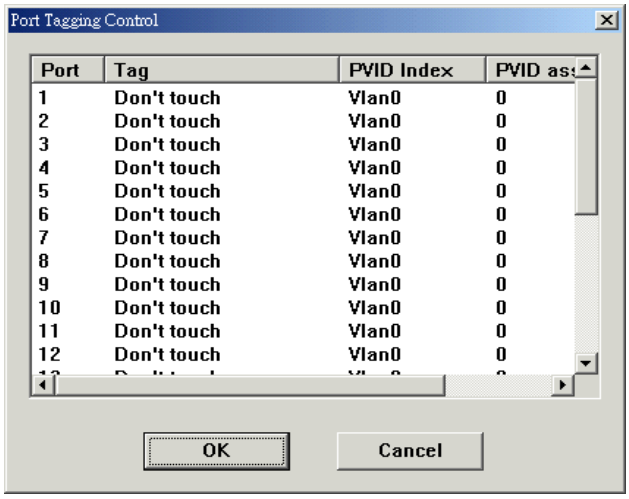
Refresh button

Read the VLAN table registers. If you can have configured VLAN but it doesn't show on the table, please press the button

Add VLAN button
Click the ADD VLAN button will pop up a configuration window below. Select port base or tag base VLAN, then check the port where you want to configure the settings. For Tag Base VLAN, please enter a VLAN ID number.



Port Tagging Control button
Press this button you will see a dialog like follows. To configure a port, please double-click the port you want to configure.

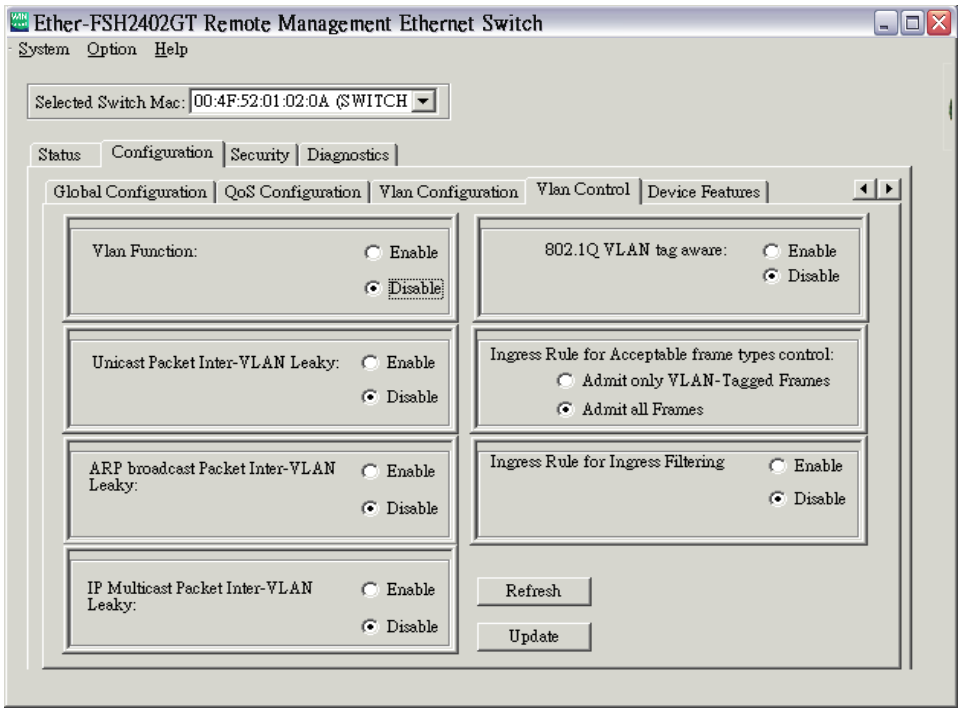

Port Tagging Control
Port Tag PVID Index PVID as
1 Don't touch Vlan0 0
2 Don't touch Vlan0 0
3 Don't touch Vlan0 0
4 Don't touch Vlan0 0
5 Don't touch Vlan0 0
6 Don't touch Vlan0 0
7 Don't touch Vlan0 0
8 Don't touch Vlan0 0
9 Don't touch Vlan0 0
10 Don't touch Vlan0 0
11 Don't touch Vlan0 0
12 Don't touch Vlan0 0
OK
Cancel

Please make sure to "Save VLAN" after configuration. If the VLAN settings is wrong, it can cause user not enable to enter the switch's management. In this case, simply reset the switch to factory's default.

Vlan Control Submenu

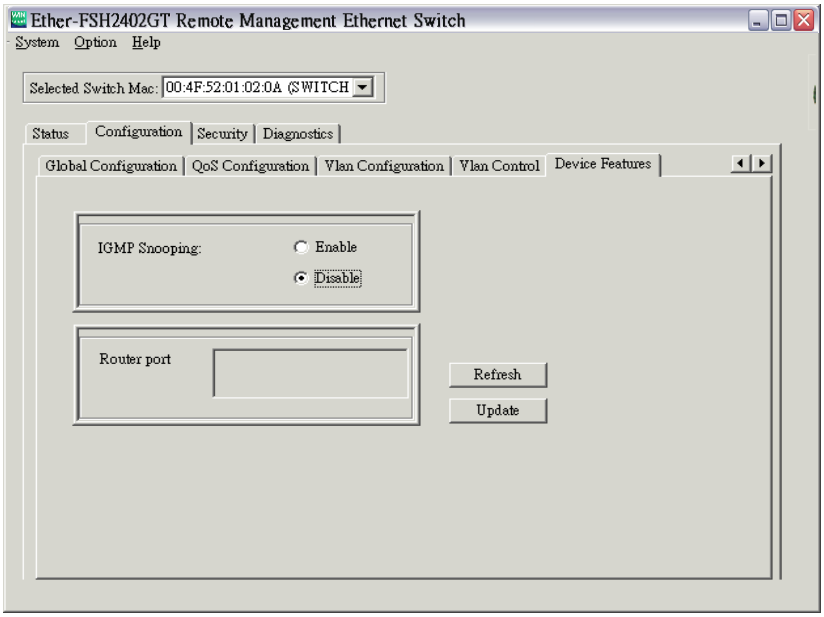
Setting VLAN Control Registers.

Press the Refresh button to read the vlan control registers. Press the Update button to set the registers, and it will set all vlan control registers to the selection.


Ether-FSH2402GT Remote Management Ethernet Switch
System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH
Status Configuration Security Diagnostics
Global Configuration QoS Configuration Vlan Configuration Vlan Control Device Features
Vlan Function: Enable Disable
802.1Q VLAN tag aware: Enable Disable
Unicast Packet Inter-VLAN Leaky: Enable Disable
Ingress Rule for Acceptable frame types control: Admit only VLAN-Tagged Frames Admit all Frames
ARP broadcast Packet Inter-VLAN Leaky: Enable Disable
Ingress Rule for Ingress Filtering Enable Disable
IP Multicast Packet Inter-VLAN Leaky: Enable Disable
Refresh
Update

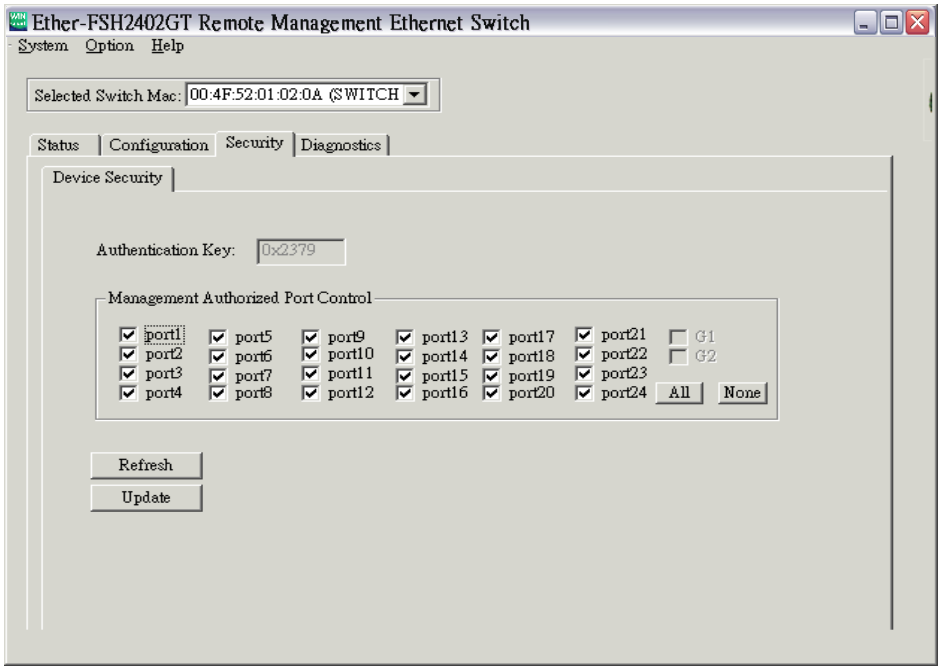
Device Feature

Setting IGMP Snooping Control register and IP Multicast Router Port Discovery register. Router port report will show the IP multicast Router port list. Press the Refresh button to read the register. Press the Update button to set the registers, and it will set the register to the selection.



Security Function

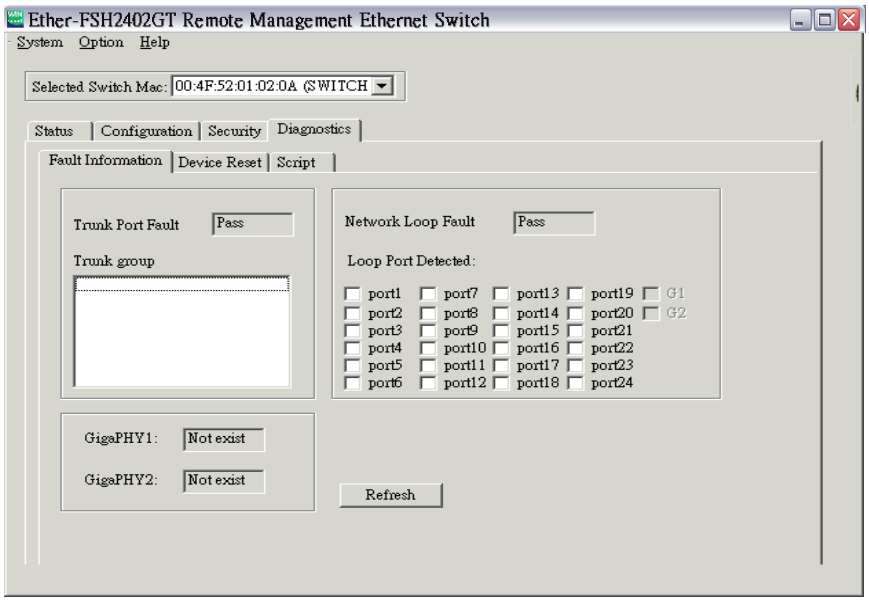
This page displays the authentication key of the switch, and the RCP Management Security Mask Configuration. The authentication key is readable in this version. You can press the Refresh button to read the register.


Ether-FSH2402GT Remote Management Ethernet Switch
System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH
Status Configuration Security Diagnostics
Device Security
Authentication Key: 0x2379
Management Authorized Port Control
port1 port2 port3 port4 port5 port6 port7 port8 port9 port10 port11 port12 port13 port14 port15 port16 port17 port18 port19 port20 port21 port22 port23 port24 G1 G2
All
None
Refresh
Update

Diagnostic Function

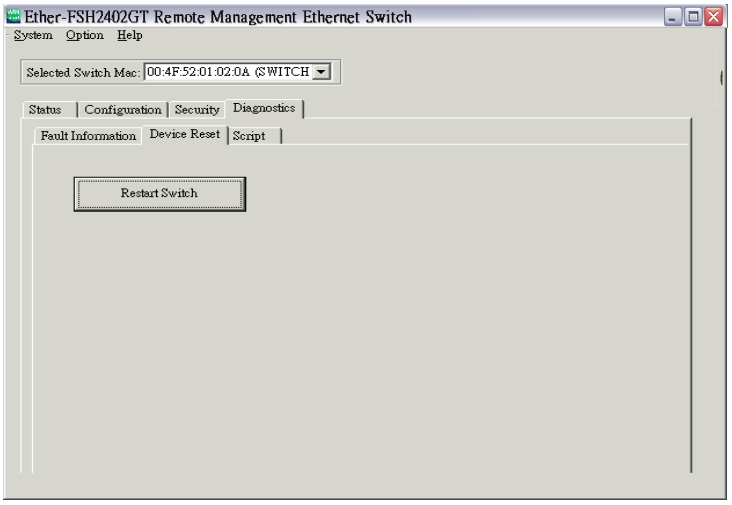
Fault Information

Show some information likes Trunk Port Fault, Network Loop Fault Test, and Gigabit PHY existence report for Gigabit Port G1G2.



Device Reset

The software reset will reset the system to the initial state. The MAC table and VLAN table data will be kept. All the current user configured values of internal registers will be kept. The EEPROM download will NOT be done again. But the system will restart the process of Auto Negotiation . The hardware reset will reset all the system at a initial state like the process of power on hardware reset.


Ether-FSH2402GT Remote Management Ethernet Switch
System Option Help
Selected Switch Mac: 00:4F:52:01:02:0A (SWITCH
Status Configuration Security Diagnostics
Fault Information Device Reset Script
Restart Switch

Pull down Menus

There are totally of 4 pull down menus at the top of the screen. We will explain the function of each one.

System menu

Save and Load Configuration
You can save or load the configuration to a file.

To save a file, do one of the following:
In the menu, click **System** | **Save Configuration .**

Note: The configuration file are named by the switch's MAC address.

To load a file, do one of the following:
In the menu, click **System** | **Load Configuration .**

In the **Open File** dialog box, select a ".rrcp" file and click **Load**.

In the **Setting Active Switch** dialog box, select a switch you want to set, and click **OK.**

Options menu

Hello polling
The Management Application send hello packet to switches in the network, and this function is used to set the generation interval of hello control frame. To reduce unnecessary control frame traffic, a value of 2 seconds is recommended.

Counter polling
The Management Application send packet to read the counter registers, and this function is used to set the generation interval of these packets. To reduce unnecessary control frame traffic, a value of 6 seconds is recommended.
efficiency.

Auto Detect and Reload
This function allows the program to automatically load the configuration file from the PC and restore to the switch. . Please check the "load application file automatically" to activate. The use of this function is not recommended for the switch as its settings are kept inside the switch's non-volatile flash memory.

Ether-FSH2402GT Fast Ethernet Switch

Appendix A Product Specifications

- **Standard Compliance**
  - IEEE 802.3 10BASE-T Ethernet
  - IEEE 802.3u 100BASE-TX Fast Ethernet
  - IEEE 802.3ab 1000Base-T Gigabit Ethernet
  - IEEE 802.1q VLAN standard
  - IEEE 802.1p Class of Service
  - IEEE 802.1ad Link Aggregation
  - ANSI/IEEE Std 802.3 NWay auto-negotiation

- **Topology** Star

- **Port Configuration**
  - 24 × 10/100 BASE-TX Port
  - 2 x 1000Base-T ports
  - Auto MDI/MDI-X

- **Data Rate**
  - *10BASE-T Ethernet*
    10 Megabits/sec (half-duplex)
    20 Megabits/sec (full-duplex)
  - *100BASE-TX Fast Ethernet*
    100 Megabits/sec (half-duplex)
    200 Megabits/sec (full-duplex)
  - *1000BASE-T Gigabit Ethernet*
    2000 Megabits/sec (full-duplex)

- **Trunking**: up to 7 trunk groups in 2, 4, or 8 port group

- **VLAN**
  - **Port Based**
  - **802.1p Tagged VLAN**
  - **VLAN filtering rules**
- **Priority (QoS) Types**
  - *VLAN based*
  - *TCP/IP TOS*
  - *Per Port*

- **Priority Level** 2-level: High/Low

- **Transmission method** Store and Forward

- **Full Duplex** Auto-negotiation

- **Active Flow Control**
  - IEEE 802.3x compliant flow control for full duplex
  - Back Pressure for half duplex

- **Filtering Address Table** 8 K per device

- **RAM Buffer** 2.5 Mbits

- **MAC Address Learning** Automatic update

- **Cabling Type**
  - 10BASE-T: 4-pair 100 ohm Category 3,4,5 UTP (100 m) cable
  - 100BASE-TX: 4-pair 100 ohm Category 5 UTP/STP (100 m) cable

- **LED layout**
  - *System LEDs*
    Power LED
    DIAG LED
  - *Station port LEDs for port 1 ~ 24*
    Link/Act LEDs
    FDX/Col LEDs
    100M LEDs

- **Dimensions** 432 × 179 × 44 m/m.

- **Net Weight** 2.7 kg

- **Power Input** Internal universal power supply, 100~240 V_{AC}, 50~60 Hz, 1.0A

- **Power Output** 20 Watts max, @ 100 ~ 240 V_{AC}

- **Operating Temperature** 32 ~ 122 °F / 0 ~ 50 °C

- **Storage Temperature** - 40 ~ 149°F / -40 ~ 65 °C

- **Humidity** < 95% (non-condensing)

- **Safety / EMI Certificates** UL, TUV, VDE, FCC Class A, CE

Appendix B Troubleshooting

This appendix contains specific information to help you identify and solve problems. If your switch does not function properly, please make sure it is set up according to the instructions on the manual.
If you suspect your switch is not connected correctly to your network, check the following points before you contact your local dealer for support.

- Make sure the Power is ON (Check the Power LED).
- Make sure the cable is connected properly on both ends.
- Make sure that the maximum cable length between switch and end node does not exceed 100 meters (for 10/100/1000BASE-T connection).
- Make sure that the maximum switch-to-hub/switch cable distance does not exceed 100 meters (for 10/100/1000BASE-T connection).
- Verify that the cabling type used is correct.
- Check the corresponding Link/Act, FDX/Col, 100M, 1000M for signs of faulty connection. Check the status of the cable attachment. If the problem persists, try a different cable.
- Try another port on the Switch.
- Turn off power supply to the Switch. After a while, turn it on again to see if it resumes to its normal function.
- If you find out where the problem is but cannot solve it by yourself, or you simply cannot locate what is at fault, please contact your local dealer for technical support.